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(n =5), anterior papillary muscles of left ventricular (LV-APM) (n =1), septal papillary muscles of right ventricular (RV-SPM) (n= 1). In five patients originating from posterior papillary muscles of left ventricular recorded Purkinje potentials at the target, Purkinje potentials preceded QRS complex during sinus rhythm and immersed in QRS complex during PVC. In patients originating from LV APM and RV SPM recorded high frequency and segment potentials preceded QRS complex during sinus rhythm. The earliest ventricular activation was recorded 22-32 (37.3±13.2) ms at the site of catheter ablation. During the follow up period of 6-24 (9.86±4.0) months after ablation,3 patients recurred and all the patients without complications.
Conclusions: PVC arise from the papillary muscles have featured electrocardiogram characteristics. Catheter ablation of PAP PVC is challenging, and transthoracic echocardiography maybe helpful for ablating PVC originating from PAP.

GW25-e0526

Catheter ablation of premature ventricular contractions originating in the aortic sinus cusp with Two QRS morphologies

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Objectives: The purpose of this study was to examine the electrocardiographic (ECG) and electrophysiological characteristics for guiding catheter ablation in patients with two morphological types of PVC originating from the aortic sinus cusp (ASC) or great cardiac vein(GCV).
Methods: ECG analysis was performed in 10 patients with PVC with two QRS morphologies. During and before the procedure, the patients showed a dominated type with LBBB and an inferior axis QRS morphology and less right bundle branch block (RBBB) morphology were divided into group 1 and a dominated type with RBBB QRS morphology were devided in group 2. During PVC, electroanatomical mapping was performed in both the right ventricular outflow tract (RVOT) and ASC in group 1, and only performed in ASC or GCV in group 2.
Results: All patients showed two QRS morphologies (LBBB and RBBB) during PVC, 7 of 10 patients were in group 1, 3 of 10 patients were in group 2. During arrhythmia, the earliest ventricular activation (EVA) was recorded 27±6ms (range 18-36 ms) from the RVOT and recorded 25±6ms (range 18-34 ms) from the ASC in group1, EVA was recorded 28 ms, 42 ms in ASC and 34 ms in GCV in group 2. All patients were successfully ablated finally,7 of 10 patients originated from the left coronary cusp (LCC), 2 of 10 patients originated left coronary cusp- right coronary cusp commissure (L-RCC) and 1 of 10 patient originated from GCV. All arrhythmias were successfully abolished. None of the patients had recurrence or complications during 18.4±5.1 (range 6-24 months) months of follow-up.
Conclusions: Ventricular arrhythmias originating from ACS often show two QRS morphologies on the ECG, which may be with two breakout site and only one origin. The origin was in LCC and L-RCC commonly, mapping in the LCC and L-RCC may be ablated successfully. The insulated myocardial fiber across the ventricular outflow septum may exist, and could present functional conduction. Preferential conduction not only exist between ASC and RVOT but also exist between GVC to RVOT. Two QRS morphologies (LBBB and RBBB) during PVC maybe another predictor of the PVC originating from ASC or GCV.

GW25-e1142

Long-term follow-up outcome of cryoballoon ablation for atrial fibrillation from single center

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Objectives: Cryoballoon ablation (CBA) for atrial fibrillation (AF) is wide used. However, its outcome of long-term follow-up is still seldom reported. This study is to investigate the long-term follow-up outcome of CBA, and further to analysis the clinical risk factors of recurrenece.
Methods: The inpatient, operating and outpatient data of patients, who were treated by CBA for AF in our center from January 2009 to April 2013, were retrospective analyzed. Left atrium diameter (LAD) was measured by transthoracic echocardiography. Failure-treatment of CBA was defined by episode of AF, atrial flutter, atrial tachycardia lasted for 30 seconds after 3 months or persistent atrial arrhythmia which needed to re-ablated during 3 months after CBA.
Results: A total of 199 patients were received 217 times CBA, and 18 patients were received re-CBA. The incidence rates of phrenic nerve paralysis, pericardial effusion, transient ischemic attack were 1.5% (n=3), 0.5% (n=1), 0.5% (n=1), respectively. All complications were resolved spontaneously. During a long-term follow-up of mean 23±14 months, 149 patients had complete follow-up data, the treated success rate of first-time CBA and all CBA were 42.8% and 47.2%, respectively. The patients who experienced the atrial arrhythmia recurrence in first 12 month occupied 86.1% in all failure-treated patients. The characteristics of failure-treated patients included with more persistent AF (39.1% vs. 18.6%, P=0.0058) and larger LAD (48±6 mm vs. 43±6 mm, P<0.0001). The Logistic analysis showed that LAD [OR=0.896 (0.842, 0.953), P=0.005] and age [OR=1.037 (1.000, 1.076), P=0.0488] could individually predict the treat-failure after first CBA, and only LAD [OR=0.876 (0.822, 0.935), P<0.0001] could individually predict the total CBA.
Conclusions: CBA procedure for AF is safe and effective although the result of long-term follow-up is preferable. Most of atrial arrhythmia are recurred during first 12 month after CBA. LAD can individually predicted for failure-treatment of CBA.

GW25-e1155

New generation cryoballoon can improve long-term outcome of cryoablation for atrial fibrillation

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Objectives: A new second generation cryoballoon (G2) is design to release more coldly temperature and to archive more rapidly pulmonary vein isolation (PVI). However, whether its design can improve the long-term outcome of cryoablation for patients with atrial fibrillation (AF) is unknown. This study is to investigate whether the G2 cryoballoon could improve the outcome of long-term follow-up of AF patients by compared to a first generation cryoballoon (G1).
Methods: The cryoablation and follow-up data of patients who were first-time treated for AF by a 28 mm cryoballoon from January 2012 to June 2013 in our center were analyzed. According to the different cryoballoon used, the patients were divided to two groups, the G1 group which treated by the first generation cryoballoon (ArcticFront) and the G2 group which treated by the second generation cryoballoon (ArcticFront Advance). The failure treatment of cryoablation was defined as any detected episode of AF, atrial flutter, atrial tachycardia which lasted for 30 seconds after 3 months later post cryoabaltion. Left atrium diameter (LAD) was measured by transthoracic echocardiography before cryoablation.
Results: A total of 105 patients (G1/G2 group: n=57/48) were enrolled in this study. The success rate of immediately PVI in the G2 group was higher than that in the G1 group [98.7 % (150/152) vs. 94.6 % (174/184), P=0.0429]. The mean minimum temperatures attained in the G2 group during different pulmonary vein cryoablation were lower than that in the G1 group (P<0.01). The mean cryomapping time (30 [16, 44] min vs. 35 [25, 55]min, P<0.0001), the mean total procedure time (105 [75, 145] min vs. 120 [80, 190]min, P=0.0056) and the mean total X ray exposure time (17 [13, 28] min vs. 20 [13, 32] min, P=0.0470) in the G2 group were shorter than that in the G1 group. One patient in the G1 group occurred cardiac infusion during atrial septum puncture. In the G2 group, two patients occurred transient phrenic nerve paralysis, other two patients occurred transient ischemic attack, and all above patients were recovery. During mean 13 [5, 20] months follow-up, a total of 73 patients had complete follow-up data, and 46 (63.0%) patients were maintained sinus rhythm. The treat-failure patients were characterized with larger LAD (48±7mm vs. 44±6mm, P=0.0079). The success rate of cryoablation in the G2 group was higher than that in the G1 group [89.3% (25/28) vs. 46.7 %(21/45), P=0.0002], and it was been testified by further Kaplan-Meier survival analysis regarding to different follow-up time (Log-Rank=5.0238, P=0.0250). The multivariate stepwise regression showed that the new generation cryoballoon was individually related with long-term outcome of cryoablation [RR=9.524 (2.511, 36.121), P=0.0009].
Conclusions: The new generation cryoballoon ablation for AF can archived not only with lower time of cryomapping, cryoabaltion, whole procedure and higher PVI success rate, but also with better long-term outcome than the first generation cryoabaltion. However, a higher major complication seem to occur on the beginning stage of new generation cryoballoon application.

GW25-e1486

Application Research of ILR tracking of atrial fibrillation radiofrequency ablation treatment

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Objectives: Using ILR tracing atrial fibrillation patient who has been successfully accepted standard radiofrequency ablation. To evaluate the application value of ILR in the diagnosis and evaluation of curative effect in atrial fibrillation.
Methods: Collected from May 2009 to August 2013, 25 cases of patients with atrial fibrillation, 16 males and 9 females, average 55.3±11.9 years old. Including 15 cases of paroxysmal atrial fibrillation, persistent atrial fibrillation 10cases. 14 patients choose Medtronic RevealRDX9528 ILR, 11cases choose Reveal XT^{TM}9529 ILR. Take outpatient follow-up, holter monitoring, electrocardiogram and telephone inquiries and other regular or irregular follow-up methods. Record patient clinical manifestations, the ILR provides arrhythmias discretion to adjust the medications and other therapeutic interventions. According to the conventional methods of the ILR implantation in patients with left parasternal anterior chest wall. In order to better track the therapeutic efficacy of radiofrequency ablation in atrial fibrillation, adopt outpatient service, local doctors to assist, telephone inquiry mode, recording patients informations such as clinical manifestations and arrhythmia.
Results: (1) All 25 patients were successfully implanted ILR, no pocket infection, bleeding complications. Patients were followed up for 6-47 months (mean 19.3±11.6). (2) The follow-up period in 25 patients ILR is manual/automatic recording 709 times, which triggered manually record 45 times (6.3%), ILR trigger automatically record 664 times (93.7%). (3) In the 542 times ECG recorded:sinus bradycardia 40 times (7.4%), 51 times room sex is tachycardia (9.4%), atrial flutter 24 times (4.4%), atrial fibrillation 61 times (11.3%), ventricular tachycardia 27 times